

Contribution to Introductory Statement

Value of US open sources to Soviet technical development

The USSR undoubtedly obtains a very substantial technological gain from their exploitation of open-source literature of the Western World. This exploitation is designed to supplement the USSR's own design capabilities. Knowledge acquired from open-sources significantly shortens the time span required for much theoretical research and development.

Value of US open-sources for Soviet intelligence purposes

There is no doubt that open-source material provides the USSR with sufficient information to gauge the present scope, size, and progress of major military programs of the US within reasonable limits of accuracy. In fact the information is such that the USSR can probably recreate the current US estimate of Soviet capabilities within similar limits of tolerance.

EMA Contribution to Detailed Presentation

I. Soviet Exploitation of US Open-Sources

The USSR has long exploited foreign open-source literature to speed their industrial development. Since 1955 greatly increased emphasis has been placed upon the systematic exploitation and dissemination of foreign language technical and scientific information.

In July 1955 the Russians pointed out serious shortcomings in their organization of scientific work. It was announced that the planning of scientific work should include a well organized study of the achievements of foreign science and technology. The Sixth Five-Year Plan (1956-60) further recognizes the need for adapting foreign accomplishments in technology to Soviet industry.

A. Steps Taken by the USSR to Exploit Foreign Open-Source Literature

In order to increase the usefulness of foreign open-source literature the Russians have established a highly efficient system for disseminating this information to their scientists, engineers, and technicians. This system includes:

1. emphasis on foreign language training among technicians and engineers
2. establishment of special organizations to collect, translate, and disseminate scientific and technical information of foreign origin (e.g., the All-Union

Institute of Scientific and Technical Information of
the Academy of Sciences, USSR).

Exploitation of foreign open-source material in the fields of industrial economics and science is largely the responsibility of scientific research organizations, libraries, and translating agencies working independently or in collaboration. There are about eight general series listed in the 1957 Soviet Subscription Catalogue of Newspapers and Periodicals (see Enclosure A for titles and samples). The duplication of subjects, e.g., chemistry, engineering, agriculture, etc., appearing under the titles of these general series does not necessarily mean duplication of efforts between the organizations engaged in exploitation but rather reflects the fact that these publications include a variety of forms -- accession lists, annotated bibliographies, summaries, abstracts, translations, and reviews.

The most comprehensive of the general series is Express-information which includes 30 subject titles roughly paralleling branches of Soviet industry. Each of these 30 subject titles is published in leaflet form, including blueprints and specifications where pertinent, 48 times per year under the auspices of the Academy of Sciences USSR. Through this service, articles appearing in foreign publications are often available to Soviet readers in translated form 2 to 3 weeks after publication in the original language.

Considering the number of periodicals, books, and newspapers published outside the USSR, the Soviet exploitation service, however laudable it may appear, cannot be assumed to bring to Soviet engineers and technicians

more than a fraction of the information appearing abroad. At present it is not possible to gauge how successfully this service is satisfying the needs and wants of its customers.

B. Open-Source Literature most Valuable to the USSR

Soviet exploitation of open-source literature is world-wide. In certain fields such as the electrotechnical industry the USSR in its early stages of development preferred the more theoretical German publications to US publications. Swiss publications were preferred for hydrogenerator study.

Types of US open-source materials most useful to the USSR include the following:

1. Highly technical books, proceedings and transactions of technical societies. German electronic engineers repatriated from the USSR stated that the 27 volumes of the Massachusetts Institute of Technology Radiation Series proved extremely useful to the USSR and that it was a folly for the US to have published them.
2. Trade and technical magazines such as Iron Age, Civil Engineering, Mechanical Engineering, Aviation Week, etc.
3. US government publications issued by such departments as the Bureau of Mines, Office of Technical Services of the Department of Commerce, Atomic Energy Commission, etc. The book entitled The Effects of Atomic Weapons published

under the direction of the Los Alamos Scientific Laboratory in 1950 was used in the preparation of a series of articles on atomic energy appearing in the Soviet Army newspaper Red Star in 1954. Early Soviet civil defense planning was probably based in part on this book.

4. Publications by US companies describing equipment, manufacturing processes, and modification and maintenance procedures.

C. Examples of Soviet Gains from US Open Sources

1. Technological Gains

a. Petroleum -- Use of US technical data has enabled the USSR to develop refining innovations much more quickly than if they had had to develop them from laboratory scale, as was done in the US. US technology has been most valuable in providing background information for the recent development of the petroleum pipeline system in the USSR.

b. Aeronautical -- Statements made by returnees from the USSR indicate that the USSR is seriously engaged in a program to exploit US technical developments in the aeronautical field through open sources. In 1948, German engineers at Soviet insistence, used photographs to design a copy of the XB-47 aircraft although it was never put into series production.

c. Non-ferrous Metallurgy -- In the field of non-ferrous metallurgy the USSR has adopted the latest process developed in the US for titanium and has duplicated the best and most recent alloys developed in the US.

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Sufficient information about the treatment of oxidized copper ores has been published in the mining and metallurgical journals of the US over the past 2 to 3 years to answer all the USSR's questions for successfully handling these ores.

d. Ordnance -- The USSR has long exploited US open sources to keep abreast of ordnance production technology. A recent example of Soviet use of US open sources is an article in the September 1956 issue of Military Herald, a publication of the USSR Ministry of Defense. An article entitled the "Use of Instruments for Night Fighting" was devoted to a description of US development of infra-red devices. The sources cited for the article included Electronic Engineering, Field Engineer's Electronic Digest, National Electronic Conference, the Military Engineer, and the Army Combat Forces Journal.

e. Chemical -- The Soviets depend on US technical journals such as Chemical Engineering and Chemical Week to reduce expenditures on research and development and shorten the time which would otherwise be required to introduce new products and improve operating efficiency. A good example of this is the case of oil extended-rubber, a very simple and inexpensive way of increasing rubber production by as much as 20 percent. Knowledge gained through US technical sources enabled the USSR recently to introduce this process.

The Saythe report on US atomic energy development, gave information on ether extraction of uranyl nitrate. This information accelerated Soviet development of the production of uranium feed materials by perhaps two years.

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f. Electrotechnical -- The USSR has used US technical publications as a starting point in the majority of their electronics development projects. Soviet dependence has been greatest in the commodity fields of electron tubes, radar, and transistors. Dependence was greatest between 1946 and 1953.

2. Intelligence Gains

There is little doubt that open-source material provides the USSR with sufficient information to gauge the present scope, size and progress of major military programs of the US within reasonable limits of accuracy. In fact, the information is such that the USSR can probably recreate the current US estimate of Soviet capabilities within similar limits of tolerance. Examples of intelligence gains include:

a. Guided Missiles -- Open sources offer an abundance of material on the scope, direction and progress of the US guided missile program. Several unclassified articles on the guided missile program of the NATO countries detailing types of missiles, general characteristics, and names and locations of manufacturers have been published in the USSR. US open sources provide valuable costing and financial data, and other tactical planning information. Lacking other data the USSR could obtain a reasonably accurate picture of the scope, size and progress of the US missile program from a careful continuing analysis of the want-ads in the New York Times.

b. Strategic Installations -- Much information is published in US open-sources giving the location and construction details of strategic projects such as the St. Lawrence Seaway, tunnels, atomic reactor and hydroelectric power installations and critical points within strategic transportation systems.

D. The Importance of US Open-Sources to Soviet Industry

The exploitation of foreign technical literature is intended to supplement the USSR's own design capabilities. Knowledge acquired from open sources significantly shortens the time span required for theoretical research and development. The USSR is often able to avoid the pitfalls encountered by other researchers.

The USSR also gains much information in respect to technological progress, i.e., equipment design, manufacturing, construction and "know-how" in plant operation.

Soviet designers are kept posted on the latest developments in their fields throughout the world. This has permitted them in many instances to improve their own designs or to modify them according to the requirements of the Soviet economy. Exploitation of foreign open sources is a practical and profitable research technique from the Soviet viewpoint because of its relatively backward position in some fields.

II. Exploitation of Soviet open sources by the US

A. Availability and Content

Although most open-source Soviet material has long been available in the US, there have been major omissions in the extent and detail of coverage. There has been a great deal of general industrial and technological information available on the USSR except in those areas dealing with military end-item production. Industrial statistics essential for a proper evaluation of the USSR's economic strength have been, for the most part, very incomplete. The volume of economic information published in the USSR has increased since 1954. There has been an increase in the number of periodicals and the intelligence value of

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information in all periodicals has increased. Major deficiencies in the release of Soviet industrial statistics, however, still exist as indicated below:

1. no statistics on non-ferrous metal production
2. no information relating to ferroalloy materials -- nickel, molybdenum, cobalt, etc.
3. sparse statistical information on telecommunications
4. no information on mix of metalworking machinery, value of production, inventory
5. no inventory of transportation equipment, its utilization, traffic in specific geographic regions, or traffic on specific transportation routes
6. no absolute data on production or utilization of major agricultural commodities
7. statistics detailing the labor force, productivity, and other aggregative industrial statistics do not compare with US statistics on these subjects available to the USSR
8. Practically no useful intelligence information on the defense establishment can be obtained from Soviet open sources.

B. Value of Soviet Open-Sources to US Industry

In relatively few industrial sectors have Soviet open sources proved of technological value to US industry. In the fields of ceramic cutting tools, electro-erosion machining and ultrasonic machining the USSR

is generally considered to be more technically advanced than the US. US research personnel have exploited some Soviet literature in these fields.

In metallurgy Soviet open sources have not revealed any basic technology novel to the free world, although they have disclosed the use of techniques in different applications and sometimes on a broader scale than has been customary elsewhere.

The USSR is well advanced in their knowledge of Arctic operations. Information on transportation, electric power and construction problems in cold weather areas is of potential value to Canada and Alaska.

In many industrial fields Soviet technical competency is approaching that of the US, e.g., in electric power, electronics, machine tools, and shipbuilding. Some of the recently reported Soviet work on travelling-wave tubes is receiving considerable attention here. In addition it is understood that MIT is about to receive a grant to translate a number of Soviet journals on electronics, primarily for general dissemination to engineers and scientists. Consequently, Soviet open-source material may become of increasing technological value in the US in these fields.

D. Value of Soviet open-sources for Intelligence Purposes

1. Non-Military Production

Although much information is denied us in Soviet open sources containing industrial statistics, these sources are of incalculable value to the US from an intelligence viewpoint. Our basic understanding of the strengths and vulnerabilities of the Soviet economy is derived from study of Soviet open-source literature. The information

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of intelligence value is usually fragmentary and must be carefully pieced together to give a comprehensive picture of their over-all economy, and the interrelationships of the various sectors. Soviet open sources are of particular value in analyzing the following Soviet sectors -- transportation, petroleum, construction, communications, electric power, consumer goods, solid fuels, iron and steel, and machine building (other than military end-items). In addition, in spite of its deficiencies, open-source literature on the budget, investment and other aggregative data is used to study and analyze the Soviet economy.

2. Military end-item production

Soviet open-sources supply practically no direct information of intelligence value.

III. Gains and Costs

The USSR undoubtedly obtains a very substantial technological and intelligence gain from their exploitation of open-source literature of the Western World. At present the US gains little technological information from Soviet open sources but the intelligence value of Soviet open-sources is incalculable.

There is no way, short of prohibiting publication, that will effectively deny the great bulk of US information to the USSR. Technological advances in the industrial area are, for the most part, common knowledge in the principal producing countries of the Western World. Attempts to seriously deny US open-source materials to the USSR would result in the USSR's obtaining much of this information from Western European sources or surreptitiously within the US. Any attempt to restrict the publication or exchange of technological information within the US is replete with the dangers of stifling US technological progress.

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The danger exists that effective restrictive measures on the part of the US would be countered by Soviet restrictions and a serious loss of information of very high intelligence value. It must be noted, however, that the policy of keeping unclassified strategic information from reaching the USSR has not resulted in any retaliatory action on the part of the USSR. In fact, as previously stated, the Russians are at present publishing much more information of intelligence value than in the postwar period.

The Soviet intelligence gain from US open sources is undoubtedly limited only by their ability or interest in processing this information. Preventing leaks of classified data would eliminate, however, the most easily acquired gains of Soviet intelligence.

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Contribution to Recaptulation

1. The USSR can not be effectively denied the great bulk of US open source material valuable from both a technological and intelligence viewpoint.
2. The US depends very heavily upon Soviet open sources as a basis for national intelligence estimates.
3. Every attempt should be made to increase the quantity of Soviet open-source materials available to the US.
4. More Soviet open-source material should be made available to US industry.
5. Any attempt to seriously limit the availability of open-source material could seriously endanger the progress of US industry. Certain types of information of strategic importance to the USSR's military potential must continue to be classified.

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